# Terrapene Times

**Adopt-A-Turtle Newsletter**

**September 2021 Volume 1, Issue 4**

*Research, education, outreach, & conservation*

Inside this issue:



## Conservation Animals: Turtle Dogs

Conservation animals are animals specifically trained to help with the management, protection, and conservation of other species, including plants and animals. Dogs are particularly good conservation animals for their unique ability to learn and detect the smell of certain rare animals, plants, or mushrooms and then lead researchers to them.

You may not have heard of John Rucker before, but in the turtle world he is somewhat of a legend. John Rucker, a box turtle extraordinaire, has seen his career trajectory morph into an amazing life of box turtle detection projects with his team of trusty Boykin Spaniels. John works closely and diligently with the dogs he calls "Super Sniffers" that possess the ability to detect and track down box turtles. Boykin Spaniels, Mr. Rucker claims, have the gift of turtle detection that is often lacking in many other breeds, including breeds known to have good 'sniffers' themselves. At an early age, John can determine which dogs possess the 'gift' and begins training them immediately. His current set of 8 dogs includes a grandmother, son, and grandson lineage suggesting turtle sniffing is at least moderately genetically linked. However, just being a genetic relative to the matriarch dog that started the turtle detection business is not good enough. These spaniels also need to have proper internal motivation and energy levels to run miles and miles in the heat through rough terrain searching for turtles in their elusive hideaways (continued on page 2).

*A Boykin spaniel with an extremely relaxed ornate box turtle in its mouth. These dogs are carefully trained in box turtle detection and handling. These spaniels are also trained to detect snakes and other species of turtles.*

←The Adopt-A-Turtle fund helped cover the cost of equipment and WU student housing at Cedar Point Biological Station!

"Turtles always strike me as devastatingly serious. If turtles could talk, I'd believe everything they said."

*-Erin O'Brien*

## Freshman Highlight

Typically, this space is reserved for highlighting a graduating senior or two that have worked hard as Washburn Turtle Team Research members. Fortunately, all current students are supposed to be returning in the Spring semester and thus they all get to continue to work with turtles (if they choose) in the future. Thus, instead of highlighting a senior graduating this December I will highlight our youngest (in terms of years in the biology program) turtle research member Samantha. Samantha has now completed her first year as a biology major and spent six weeks this summer living at Cedar Point Biological Station in Western Nebraska doing box turtle research with her research partner Mason. Samantha balanced fieldwork and lab work phenomenally well and I am excited for her future endeavors!

*Samantha after discovering a brand-new male turtle which she named February.*

# Conservation Dogs continued…

Members of the Washburn Turtle Team traveled to Iowa in late may to assist Mr. Rucker and his dog team in finding turtles at Hawkeye Wildlife Area. Thanks to a new collaboration forged at the Kansas Herpetology Society Meetings last fall (2020), the Washburn team now collaborates with Dr. Daniel Hughes at Coe College in Iowa on cross-populational box turtle studies including demographic work, behavioral syndrome work (see last news letter regarding turtle personality), and movement ecology. In Iowa, Washburn Turtle team members, including myself and three students, helped record GPS locations of captured turtles, placed flags to make returning the turtles easier and more accurate, and recorded measurement data, sex, ID, took photos, and collected DNA. There were around another 20 volunteers from various other groups and organizations on hand as well; however the Washburn and Coe students were in charge of data collection. On the second day of this two-day venture, Washburn students and myself were placed fully in charge of the entire operation while Dr. Hughes managed an outreach event elsewhere. Washburn students were amazing with this immense responsibility and the entire turtling day went well. Overall, over 25 turtles were found, including some by WU students and myself not found by the dogs! Go WU Turtle Team!

## Student Perspective: Aubrey Gauntt Discusses Research

My name is Aubrey Gauntt, and I am a senior at Washburn University earning a degree in biology. My goal is to attend veterinary school so that I may work with small animals and exotic pets.

I began working with Dr. Reed and the Washburn Turtle Research team in the Spring of 2020. We traveled to Cedar Point Biological Station to track brumation locations for our Nebraska population of ornate box turtles. The experience was so interesting and enjoyable that I committed to returning to the station for six weeks over the summer. While living at the field station, I had the opportunity to track turtles every day by hiking across beautiful hills and canyons. I was lucky enough to work not only with Washburn students but also with students from the University of Nebraska Lincoln. We learned several different aspects of turtle research including – transmitter application, recording measurements, PIT tag insertion and flesh fly extraction. After tracking for a few weeks, my team and I began behavior assays to assess whether or not turtles displayed behavioral syndromes (personality) by observing boldness, exploration, and activity displayed by each individual. We also examined relationships between these syndromes and field behaviors, such as home range size, microhabitat use, and philopatry.

*Aubrey Gauntt measuring a turtle with Washburn's own Dr. Tracy Wagner, a physiology professor and turtle team collaborator.*

Fortunately, I began my research early enough in my college career that I have been able to continue being a part of research throughout my experience at Washburn. Thus far, I have presented at the Kansas Herpetological Conference, traveled to Iowa and Nebraska, and taught other students how to complete research with ornate box turtles. Dr. Reed and I are also in the midst of publishing our research in a scientific journal. As a future veterinary student, the work that I have done through Washburn has been extremely beneficial. Not only have I gained the knowledge needed to provide care for turtles, I have also developed many service-related skills such as teamwork, leadership, and independence. In doing research with ornate box turtles, I now have a unique set of skills which will make me stand out in the pool of veterinary school applicants. Apart from the experience I have earned, I am grateful that I was able to be included in a unique project while working with an amazing team of students and professors.

-Aubrey Gauntt

**Upload your photos of ornate box turtles and three-toed box turtles here:**

**https://forms.gle/XfuRp4q42GBbanq**

See last newsletter for details

# New Research Site: New Turtles & Opportunities

In April the WU Turtle Research Team started work at a new potential field site that looked promising for ornate box turtles based on habitat type, size and other characteristics. Students taking a behavioral ecology course initially surveyed the habitat for animals, including box turtles and found absolutely no signs of turtles. The temperature was cold, and it was unexpectedly rainy during this lab, so I was not dejected from not finding any signs of turtles. A few weeks later, with better warmer and drier weather, we found our first turtle (Male 90) that we affectionately named Peter Parker. A few days later we found Male 91 that we named Terry the Terrapene, and we were off! Over the next 4 months we found another 42 ornate box turtles, including many juveniles which is a great sign for population vitality and long-term

*Washburn students posing with a new turtle found at the new field site near Topeka. From left to right: Mason, Anthony, and Elise. All three students started their research this summer (2021).*

persistence. Our first Kansas site is primarily a tall-grass prairie with surrounding oak-hickory forest. The new site is significantly more open, and its rolling hills are grazed by cattle and surveyed from above by an endless supply of nighthawks. Having two unique sites relatively nearby to Washburn enables laboratory students taking classes and research students to learn about differences both within and across populations in terms of demographics (including birth and death rates, sex ratios, and age structure), body size and body condition differences, microhabitat utilization, temperature and food preference differences, and variation in predator and anthropogenic (human) risk. By investigating multiple populations, including those in Nebraska and Iowa for the research students, students can begin to get a better understanding on how various ecological processes can shape populations differently under different circumstances. Here's to hoping we find even more turtles next year at all of our sites!

# Turtles and Flesh Flies

One fascinating, albeit somewhat unpleasant aspect of studying ornate box turtles throughout the midwest (KS, NE, IA) is examining which populations are infected with flesh flies, a parasitic fly that can kill a turtle. Based on genetic work conducted by collaborator Dr. Joshua Smith at Washburn, we have found that some of our box turtle populations are infected by a turtle specific flesh fly called *Sarcophaga cistudinis* (it has no common name). Instead of ovipositing its eggs into a substrate like typical, this fly species larvaposits, aka, it directly injects live larvae into the turtle. These larvae then munch away on the turtle until they eventually exit the turtle to pupate in the ground. After pupation, they will become adults and start the cycle over again. Flesh flies can be devastating to turtle populations, as particularly bad years can kill a huge number of turtles. The WU turtle team, in collaboration with Dr. Smith, is trying to determine the factors and conditions that may best facilitate (or hopefully not facilitate) these flesh fly parasites. Currently we are examining rates of infection across populations, individual proclivity for getting parasitized (or not) each year, and which environmental factors correlate with flesh fly presence in the habitat.

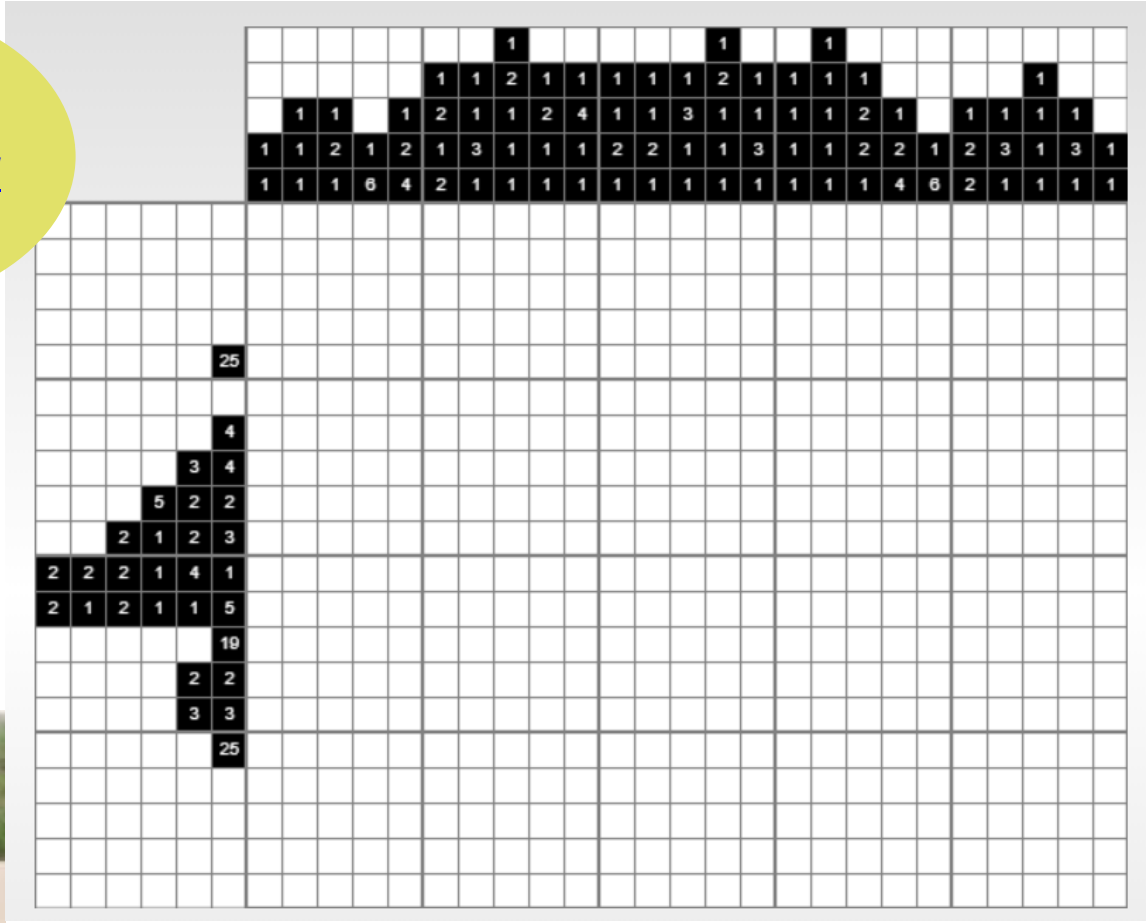
# Turtle Hero: Mitzi Cafer

One major source of mortality for turtles (of all ages and sizes) is roadside mortality. Box turtles are an anachronism of the time, and their careful and methodical pace of life is not suited for crossing highways, not matter how busy. Turtles, though, are tough. Having outlasted the dinosaurs, survived an ice age, and coped with the rise of mammals, it should be no surprise that they are sturdy creatures. It would seem that cars an entirely different threat and turtles are too often killed by them. However, not all turtles are killed when hit by cars. Instead, perhaps worse, they survive (again they are tough), but with fractured or pulverized shells, broken legs, and less obvious but equally bad internal damage. A few good samaritans will report these injured animals to Operation Wildlife Rehab or other animal care institutions. In Topeka, rescued turtles are almost exclusively brought to Mitzi Cafer. Mitzi cares for every turtle, bringing them to K-State for surgery, shell repair, and other operations. At home, she has constructed a turtle sanctuary where she continues to care, administer proper treatments and medications, and feed the turtles daily. This is more than a full-time job and yet Mitzi does it with passion and an amazing amount of optimism. The WU Turtle Team would like to extend a massive thank you to Mitzi for all her amazing work.

**We're on the Web!**

https://wu-turtle.weebly.com/

Dr. Benjamin Reed
Stoffer Science Hall
Room 203-H
1700 SW College Ave
Topeka, KS 66621
**E-mail:**
benjamin.reed@washburn.edu
or
wuadoptaturtle@gmail.com



Complete the nonogram above! For help see: https://www.youtube.com/watch?v=AA8KVoCse3U

# Summer 2021 Highlights

These newsletters tend to have lots of text, perhaps too much. Thus, I have created a website (link above) where a collage of photos can be seen on the homepage.

Below is a summary of the WU Turtle Team Summer 2021 highlights:

- Students conducted research this summer in KS (3 sites), Iowa (Hawkeye Wildlife Area), and Nebraska (Cedar Point Biological Station)
- Three students (Mason, Samantha, and Haley) lived at Cedar Point Biological Station in Western Nebraska for 6 weeks conducting research on box turtles there. Their research will be presented at an upcoming conference.
- Pre-vet student Aubrey repaired a shell that was destroyed by a car. The repair and recovery went well and the turtle was able to be released. Good luck to turtle Major Tom.
- Students (and myself) conducted behavior assays on 92 turtles spanning 4 populations to investigate inter-populational differences in turtle personality as it relates to other aspects of each population's ecology.

- Collaborators Dr.'s Paul and Tracy Wagner, and their Daughter Patience (all pictured above) visit the CPBS field site and join forces with the WU turtle team there to spearhead a new research project!
- Anthony (pictured on pg 3) jumpstarted the new population in Topeka and conducted amazing work at the site all summer. Great job Anthony!